

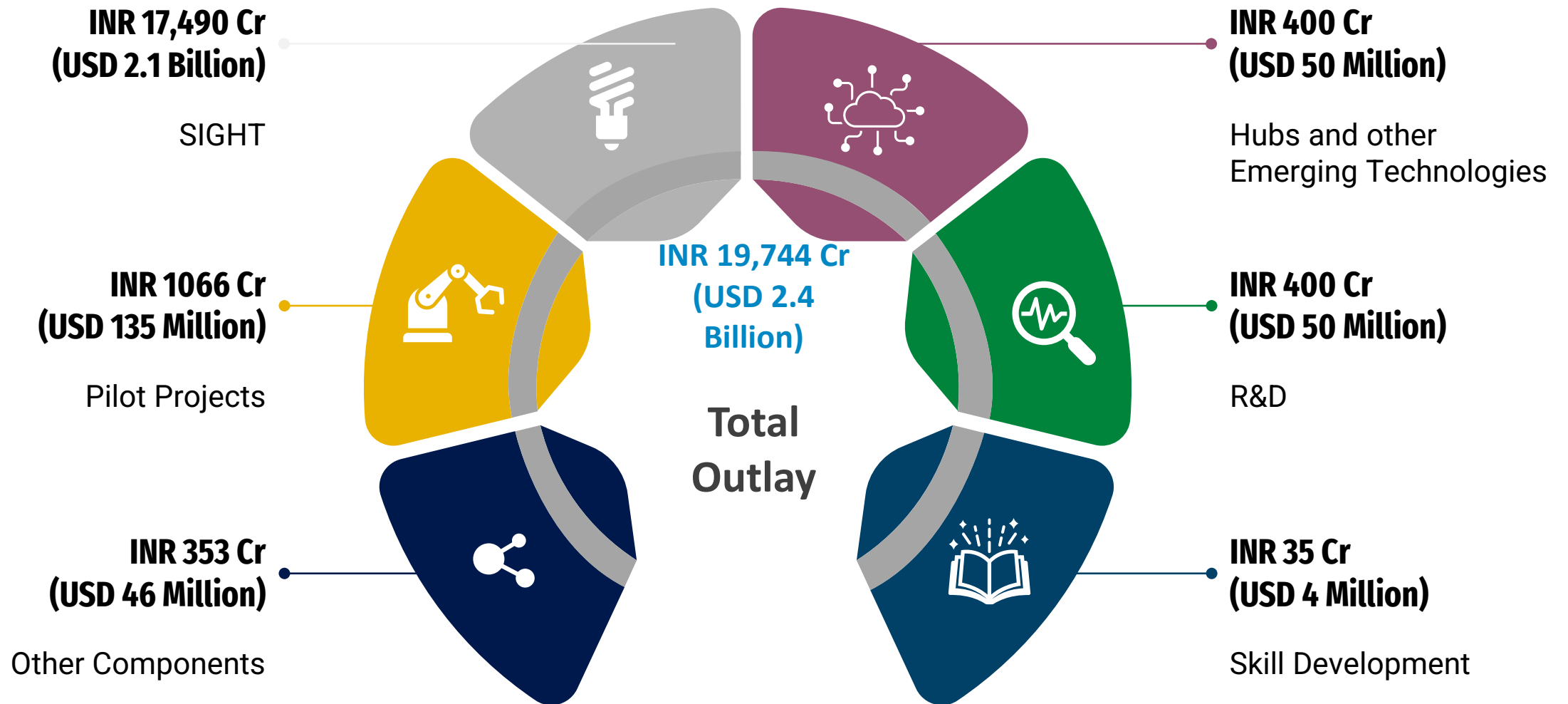


International Partnership
for Hydrogen and Fuel Cells
in the Economy

***INDIA* Update**

44th IPHE Steering Committee Meeting
24 – 25 November 2025
Riyadh, Kingdom of Saudi Arabia

Budget allocation under NGHM



Snapshot of Green Ammonia SIGHT 2A e-Reverse Auction



Announcements / New Initiatives *INDIA*




- Incentives have been awarded for 8,62,000 TPA of GH2 production and 3000 MW PA of domestic electrolyser manufacturing .
- Reverse auction for Green Ammonia tender for 724,000 TPA completed. Price of INR 53.27/Kg(~ USD 600/ton; Weighted mean) discovered.
- 5 pilot projects have been awarded to use hydrogen in steel sector
- 5 projects awarded for deploying **37 Hydrogen fuelled vehicles** (10 Buses & 27 Trucks) and **9 HRS** across **10 different routes**. **Trials are under progress.**
- 23 projects awarded for R&D across GH2 Production, Application and safety themes. 2nd round invited on 14th July 2025.
- As part of EUTTC collaboration, joint R&D proposals invited on 6th May 2025 from EU/ Indian research institutions on GH2 production from waste water.
- 5 projects have been awarded for developing testing facilities across GH2 value chain and second round invited.
- Revised scheme for pilot projects in biomass & Innovative technologies issued. Proposals invited from Start-ups for hydrogen innovation projects
- Four Hydrogen Valley Innovation Clusters (HVICs) sanctioned
- Regulations, Codes and Standards: 128 standards have been adopted/published


Pilot Projects under NGHM


Organization : Arcelor Mittal Nippon Steel India Limited (DRI)
Location: Hazira, Gujarat

← Steel
← Shipping
← Transport

Transport Consortium Routes

-  NTPC (With Buses manufactured by AL)
-  Tata Motors + IOCL
-  ANERT + BPCL

 Shipping

 Steel

Organization : Jindal Steel & Power Limited (DRI)
Location: Angul, Odisha

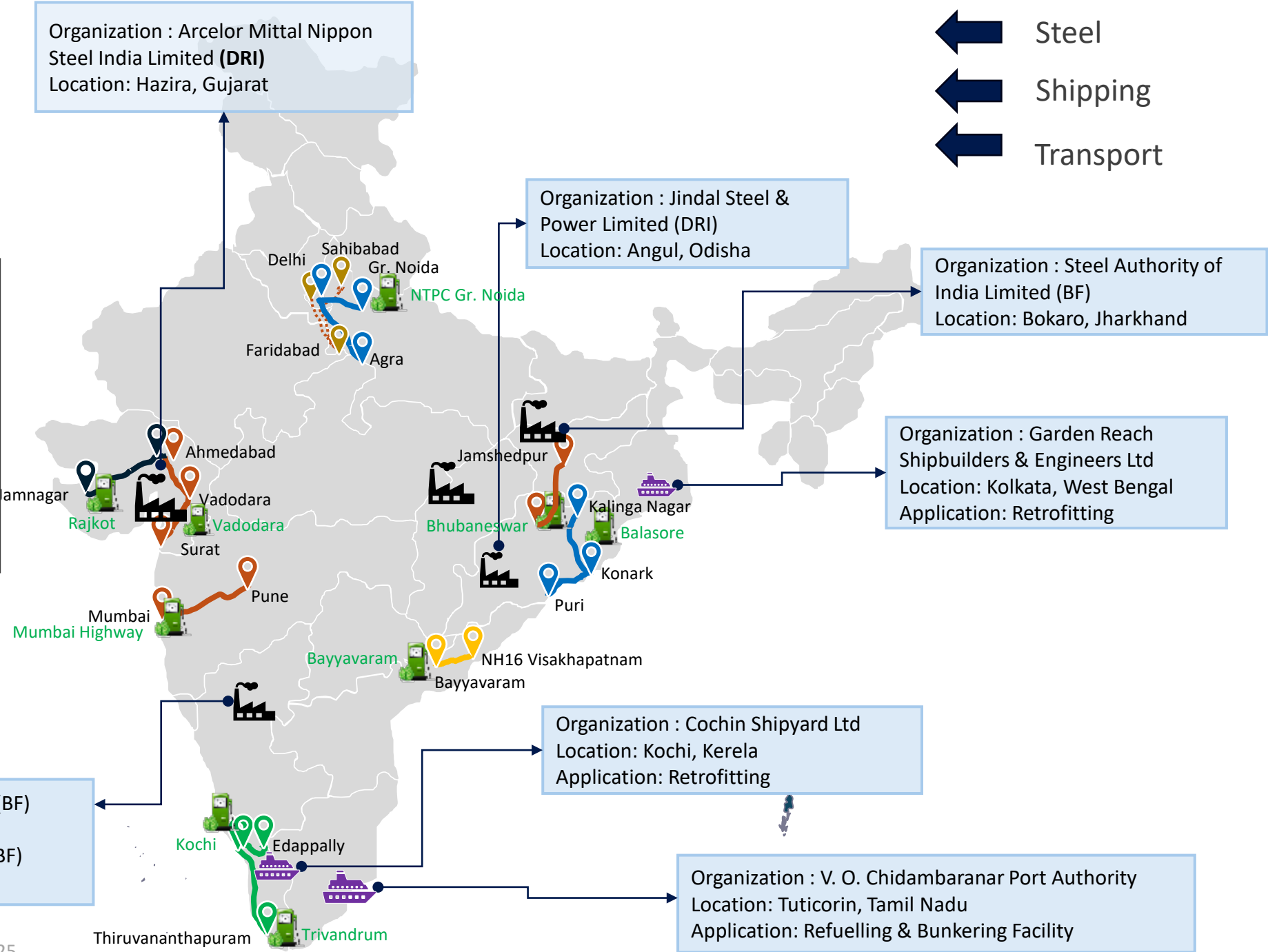
Organization : Steel Authority of India Limited (BF)
Location: Bokaro, Jharkhand

Organization : Garden Reach Shipbuilders & Engineers Ltd
Location: Kolkata, West Bengal
Application: Retrofitting

Organization : Cochin Shipyard Ltd
Location: Kochi, Kerala
Application: Retrofitting

Organization : V. O. Chidambaranar Port Authority
Location: Tuticorin, Tamil Nadu
Application: Refuelling & Bunkering Facility

1. Organization : JSW Steel Limited (BF)
Location: Vijayanagar, Karnataka
2. Organization : JSW Steel Limited (BF)
Location: Vijayanagar, Karnataka



Awarded Hydrogen Valley Innovation Clusters (HVICs)



Jodhpur HVIC

Location HVIC: IIT Jodhpur Campus

Lead Applicant: IIT Jodhpur

Production Route:

- Electrolysis

Utilization

- Transport - H2ICE
- Hydrogen Blending
- Ammonia Production

Bhubaneswar-HVIC

Location HVIC: IIT Bhubaneswar

Lead Applicant: IIT Bhubaneswar

Production Route:

- Electrolysis

Utilization

- DRI – Green Steel
- Transportation – Mining Truck

ANERT-HVIC

Location HVIC: Kochi

Lead Applicant: ANERT (Agency for New and Renewable Energy Research and Technology; Kerala State Government Agency for Energy, recognized by MNRE)

Production Route:

- Electrolysis

Utilization

- Ammonia
- City Gas Blending
- Transportation – Road and Waterways

Pune-HVIC

Location HVIC: Pune-Mumbai region

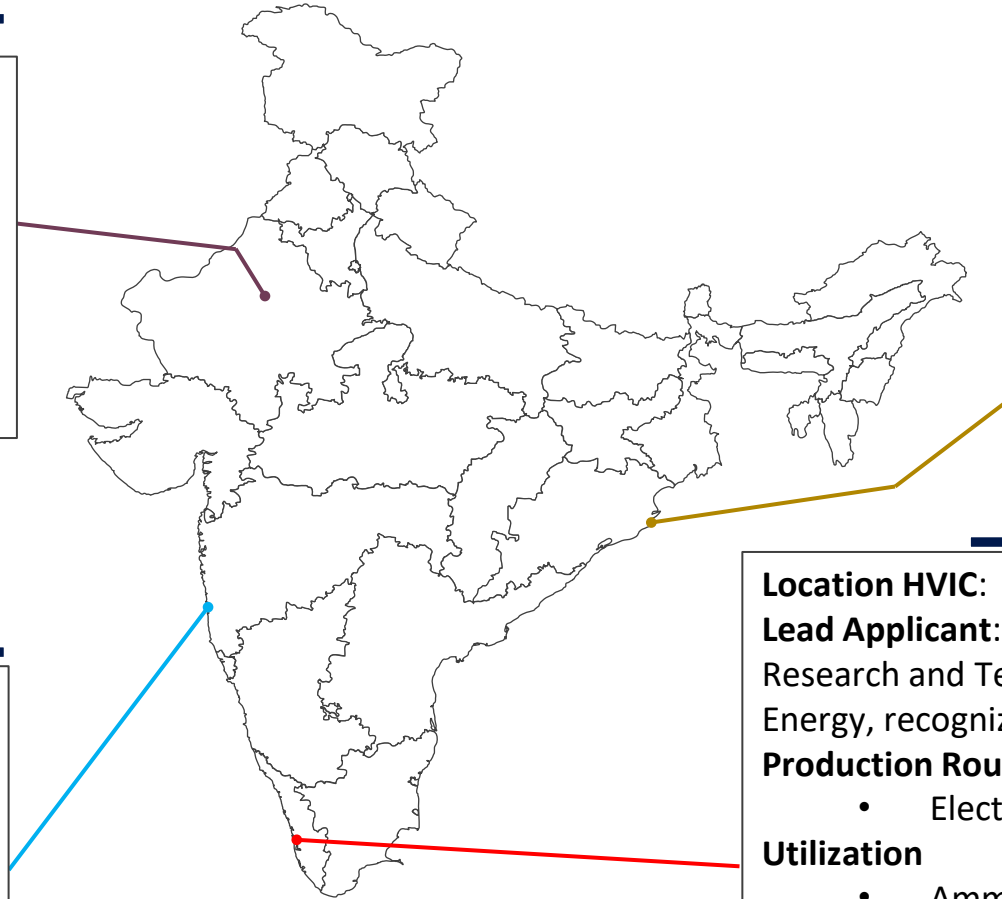
Lead Applicant: CSIR – NCL

Production Route:

- Bio-ethanol
- Electrolysis

Utilization

- Fine/Specialty Chemicals
- Transport - Bus



Budget

Central Financial Assistance : INR 169.89 Cr/ USD 22 M

Industry/consortium : INR 315.43 Cr/ USD 40 M

Total Project Cost: INR 485.32 Cr/ USD 62 M

Examples of Lessons Learned and Impact *India*

Program initiative, policy, regulation or mandate	Lessons Learned/Outcomes
Pilot projects in Transport, Shipping and Steel Sector	<ul style="list-style-type: none"> i. Long term viability of routes ii. Steel requires much more R&D and tech evolution iii. Robust monitoring framework required iv. Choice of reliable partners is crucial
Guidelines for Implementation of SIGHT programme <ul style="list-style-type: none"> • Component - I: Electrolyzer Manufacturing • Component -II: Green Hydrogen (Mode 1) 	<ul style="list-style-type: none"> i. Incentive based on performance, not price ii. Maximizing indigenous electrolyser manufacturing iii. Encourage smaller players/startups iv. Keep multiple routes for production open
<ul style="list-style-type: none"> • SIGHT Mode 2A (aggregation model for Green Ammonia) • SIGHT Mode 2B (aggregation model for Green Hydrogen) 	<ul style="list-style-type: none"> i. Demand aggregation -> better price discovery ii. Simplified tender procedures, no one-one negotiation iii. De-risking investment is crucial to low prices iv. Payment security mechanism

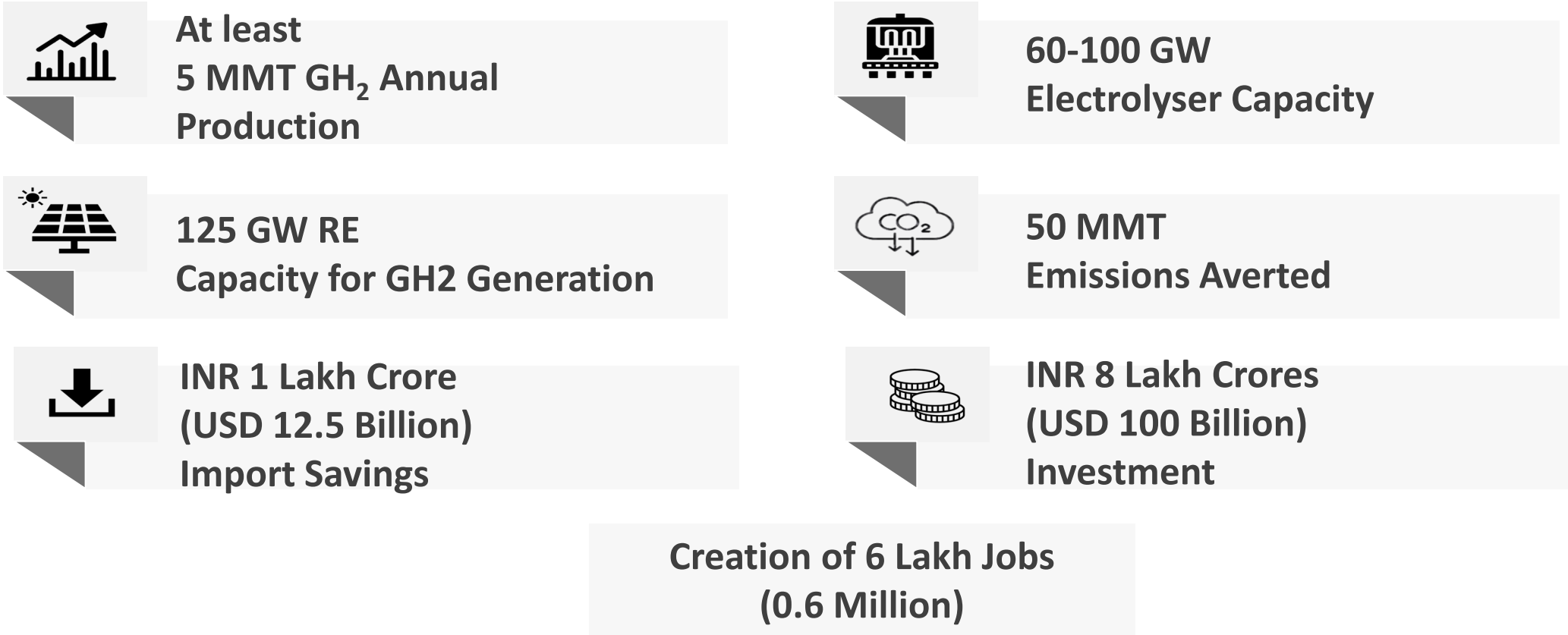
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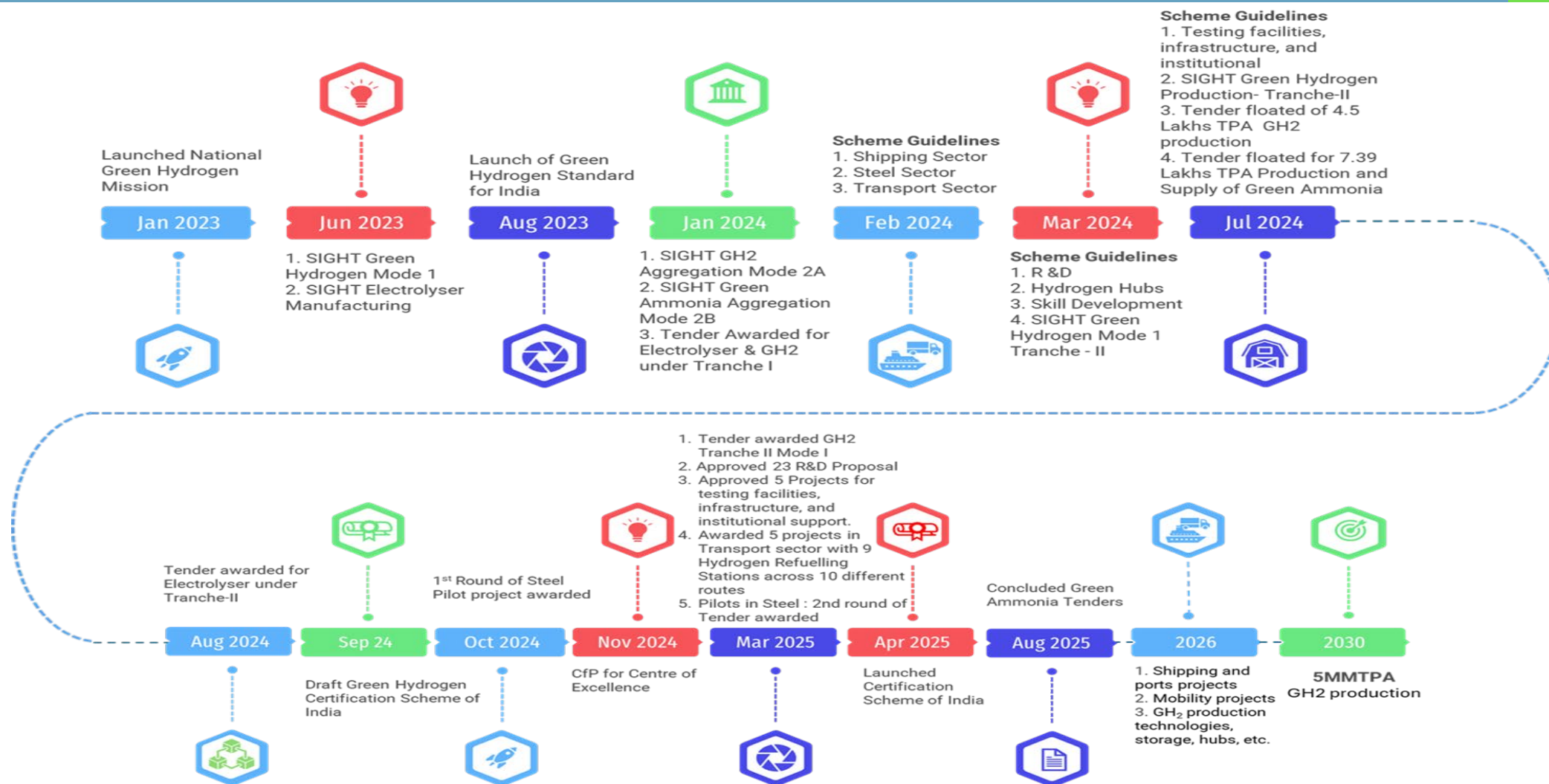
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National Green Hydrogen Mission Overview

India Launched National Green Hydrogen Mission (NGHM) in January 2023 with following targets to be achieved by 2030



Timeline of NGHM Initiatives



Status of Deployments

- **Green Ammonia aggregation:** The Reverse auction for Green Ammonia tender under SIGHT 2A tender with total capacity of tender 724,000 TPA is completed. Price of INR 53.27/Kg(~USD 600/ton) (Weighted mean) has been discovered
- **Green Hydrogen aggregation:** 20,000 TPA for Green Hydrogen generation units have been awarded by refineries
- About **2.55 MMTPA** of Green Ammonia production for export and about **0.3 MMTPA** for domestic consumption tied up by producers

Leading Government Initiatives

- Implementation of various **pilot projects in steel, shipping and mobility sector**
- Funding of **Testing facilities, Infrastructure, and Institutional support**
- **R&D** in Green Hydrogen domain
- Development of **Regulations, Codes and Standards**
- Creation of **Green Hydrogen Hubs and Valleys**
- **Skill and Capacity Building**

Goals or Focus Areas

- **60-100 GW** Electrolyser Capacity
- **50 MMT CO₂** Emissions to be averted
- **Import Savings** of INR 1 Lakh Crore (USD 12.5 Billion)
- **Investment** of INR 8 Lakh Crores (USD 100 Billion)
- Creation of **6 Lakh jobs (0.6 Million)**

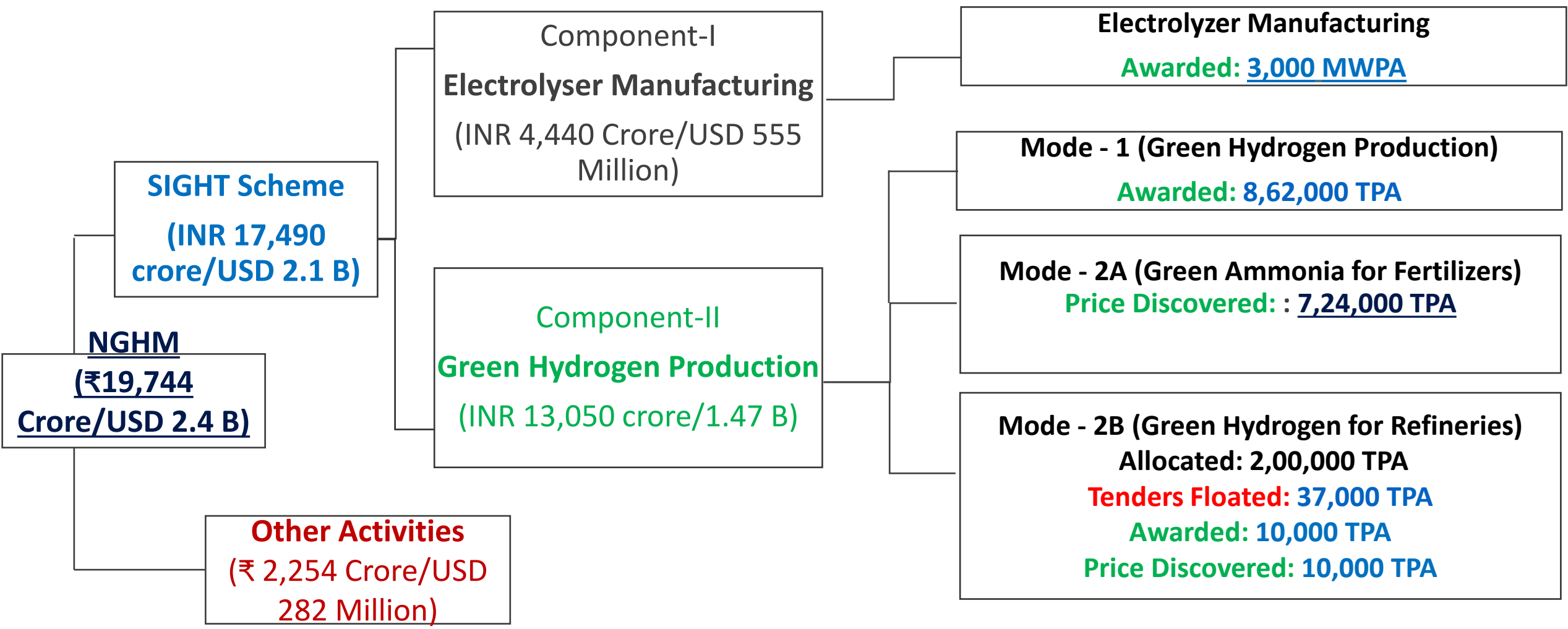
Deployment Goals

5 MMTPA Green Hydrogen Production by 2030

Funding

INR 19,744 Cr
(USD 2.4 Billion)

Announcements / New Initiatives *INDIA*



Outlay: INR 455 Crore (USD 57 M)

Timeline: 5 years (till 2029-30) 

Scheme Implementing Agency (SIA): MECON Limited (under Ministry of Steel)

Technologies under development:

- **Scheme A** : Pilot project to produce DRI using 100 % Hydrogen using NEW vertical Shaft
- **Scheme B** : Use of hydrogen in existing Blast Furnace to reduce coal/coke consumption
- **Scheme C** : Injection of Hydrogen in existing vertical shaft DRI production to partially substitute the Natural Gas or other reducing gas

Status:

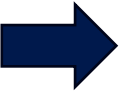
- 5 projects awarded (around INR 131.4 Crore/ USD 17 M);
- The above projects will be commissioned between October 2026 and December 2027.
- DPR submitted to SIA by: SAIL (Scheme B) and JSPL (Scheme C)
- EoI floated for new projects on 2nd Aug 2025

Pilot Projects – Transport Sector



Outlay: INR 496 Crore (USD 62 M)

Timeline: 3 years (till 2025-26)



Scheme Implementing Agency (SIA): Automotive Research Association of India (ARAI)

Status:

- 5 projects awarded (around INR 208 Crore) for deploying **37 Hydrogen fuelled vehicles** (10 Buses and 27 Trucks) and **9 Hydrogen Refuelling Stations** across **10 different routes**

1. Greater Noida – Delhi – Agra	6. Thiruvananthapuram – Kochi
2. Bhubaneswar – Konark – Puri	7. Kochi – Edappally
3. Ahmedabad – Vadodara – Surat	8. Jamnagar – Ahmedabad
4. Sahibabad – Faridabad – Delhi	9. NH-16 Visakhapatnam – Bayyavaram
5. Pune – Mumbai	10. Jamshedpur – Kalinga Nagar

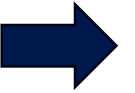
- Tata Motors has launched the trials of hydrogen-powered heavy-duty trucks on 4th March 2025
- H2-FCEV Bus received at NPTC, for Greater Noida–Delhi–Agra route on in July

Pilot Projects – Shipping Sector



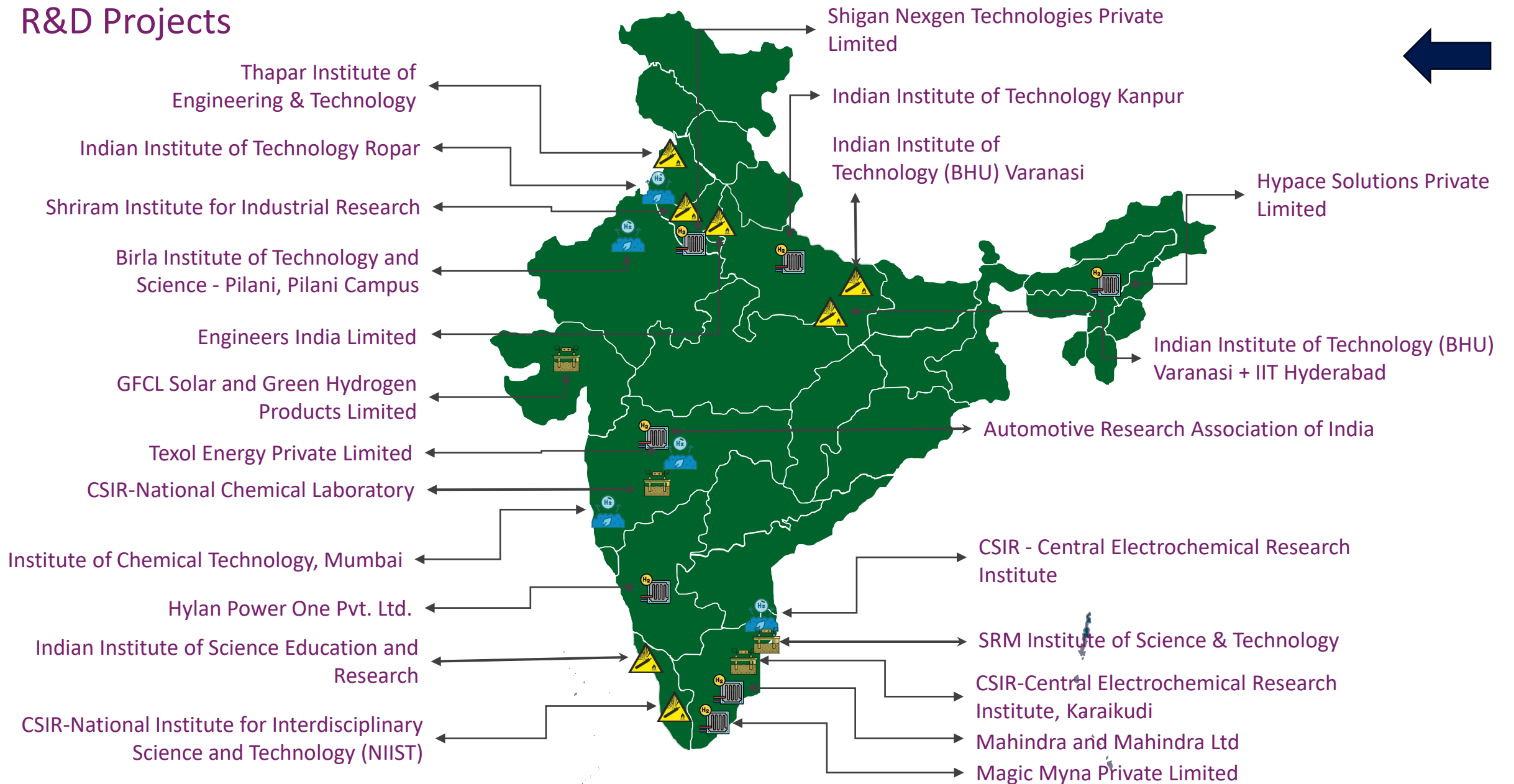
Total Outlay: INR 115 Crore (USD 15 M)

Timeline: 2 years (till 2025-26)



- **Component A: Retrofitting of Vessels (Outlay INR 80 crore (USD 10 M))**
 - **Scheme Implementing Agency (SIA):** Shipping Corporation of India (SCI)
 - It has been decided to acquire methanol based (dual fuel capability) new ships. .
 - The price bids for 2 Nos. new building PSVs capable of running on Green Methanol is invited. Expected completion of the project, 3 years from the signing of contract.
- **Component B: Establishment of Bunkering and Refueling Facility of GH2 (Outlay INR 35 Cr)**
 - **Scheme Implementing Agency (SIA):** V.O. Chidambaranar Port Authority
 - DPR prepared by VOCPA for development of bunkering and refuelling facility with 750m3 Green Methanol bunkering, as pilot project at VOCPA. Project would be completed by January 2026.
 - Work Awarded on 18.08.2025

R&D Projects



Production Category (Biomass)



Production Category (Non Biomass)



Safety, Cross Cutting Analysis & Integration Category



Applications Category